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9749 (NCR.0044US)

In Re Application Of: Jeetendra Chaware et al.

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
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Invention: CAPTURING DATABASE SYSTEM INFORMATION

COMMISSIONER FOR PATENTS:

Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on August 20, 2004.

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Dated: October 19, 2004

Dan C. Hu  
Registration No. 40,025  
TROP, PRUNER & HU, P.C.  
8554 Katy Freeway, Suite 100  
Houston, TX 77024  
Telephone: (713) 468-8880, ext. 304  
Facsimile: (713) 468-8883

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Jeetendra Chaware et al.	§	Group Art Unit:	2172
Serial No.:	09/923,975	§		
Filed:	August 7, 2001	§	Examiner:	Baoquoc N. To
For:	Capturing Database System Information	§	Atty. Dkt. No.:	9749 (NCR.0044US)

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**APPEAL BRIEF PURSUANT TO 37 C.F.R § 41.37**

Sir:

The final rejection of claims 1 and 3-48 is hereby appealed.

**I. REAL PARTY IN INTEREST**

The real party in interest is NCR Corporation by virtue of the assignment recorded at reel/frame 012073/0247.

**II. RELATED APPEALS AND INTERFERENCES**

None.

**III. STATUS OF THE CLAIMS**

Claims 1 and 3-48 have been finally rejected and are the subject of this appeal.

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#### **IV. STATUS OF AMENDMENTS**

No amendments have been submitted after final rejection.

#### **V. SUMMARY OF THE INVENTION**

Claim 1 recites a method that comprises presenting a user interface in a test system, receiving user selection through the user interface pertaining to environment information of a target database system to extract, and receiving, by the test system, the environment information extracted based on the user selection from the target database system, where the test system is separate from the target database system.

Independent claim 14 recites a first system that comprises a processor, a display, and software executable on the processor to present a user interface in the display. The user interface comprises user-selectable elements to indicate environment information to export from a target database system separate from the first system.

Independent claim 28 recites an article comprising at least one storage medium containing instructions that when executed cause a first system to present a user interface, receive user selection made in the user interface indicating environment information to extract from a target database system separate from the first system, and receive the environment information extracted based on the user selection from the target database system.

In accordance with some embodiments, a module (referred to as a “system emulation tool”) enables flexible and convenient capture of environment information of a target database system. In one arrangement, the system emulation tool is executable in a system that is separate from both the target database system and a test system, or alternatively, the system emulation tool is executable in one of the target system and test system. By capturing environment

information of the target database system and providing the information to the test system, target-level emulation is enabled in the test system to allow emulation of the target system for purposes of testing, debugging, or other analysis. The captured target environment information, stored in and/or mapped to appropriate tables, files, and other storage locations in the test system, is accessible by an optimizer program in the test system. In response to a test query, the optimizer program selects the lowest cost (or a lower cost) query plan in the target environment created by target-level emulation. By using target-level emulation to generate query plans and estimated performances of the query plans, queries are tuned for better performance, the impact of environment changes on queries is better modeled, and the source of problems in a database environment is determined more efficiently. This is performed in a test or analysis system that is located at a location remote from the target system. Further, the test system can be a much smaller and less sophisticated system than the target system, making testing more convenient and less expensive. Specification, p. 3, lines 7-25.

Fig. 1 of the present application shows an example arrangement having several target database systems (14A, 14B), a test system 10, and an emulation client system 20 in which a system emulation tool 22 is executable. In one example, the target database system 14A is located at a first customer site, while the target database system 14B is located at a second customer site. Each target database system 14 includes database management software 36 that manages access of data in a respective database 32. Specification, p. 3, 26-31.

Each target database system 14 is associated with a system environment 34, which is made up of system-specific information as well as database-level information of each target system. Thus, as used here, “environment information” of a target database system refers to the

system-specific information, database-level information, or any portion of the system-specific or database-level information. Specification, p. 4, lines 6-10.

System-specific information includes such information as the number of nodes in the target system, the number of processors or central processing units (CPUs) per node, the number of virtual processors in each node, and other system information. Database-level information includes statistics, random samples of virtual processors, data manipulation language (DML) statements, data definition language (DDL) statements, and the actual data of the database itself. Specification, p. 4, lines 11-16.

Statistics include information on how data is structured in the database, the number of rows in a table, the data demographics of a table, and approximations of the distributions of particular data values in columns (or attributes) of a table (or relation). Random samples refer to samples captured from virtual processors, which are software modules that manage access of respective portions of a database. The random samples contain the data demographics of the database portions managed by the virtual processors. DDL statements affect the structure of database objects, and may include statements such as SQL (Structured Query Language) ALTER statements (to redefine or alter databases, tables, indexes, etc.), CREATE statements (to create databases, indexes, tables, etc.), and so forth. DML statements are statements that manipulate data, such as the COMMIT statement (to make permanent all changes since the beginning of a transaction), DELETE statement (to remove rows from a table), INSERT statement (to add new rows to a table), SELECT statement (to perform a query by selecting rows and columns from one or more tables), UPDATE statement (to change data in a table), and so forth. Specification, p. 4, lines 17-31.

The test system 10, in accordance with one embodiment, also includes a visual explain and compare module 42 that presents a query plan selected by the optimizer module 18 in a user interface of the test system 10. In one embodiment, the visual explain and compare module 42 provides a graphical user interface in which steps of a query plan are displayed. Each step of the query plan is depicted as an icon, with the icons connected by lines to represent the flow of the steps in the query plan. The icons are designed to represent objects such as relational algebra (e.g., select, project, join); physical algebraic operators such as nested join, merge join, hash join, and so forth; tables; sorts; redistribution; views; duplications; and other objects. Specification, p. 6, lines 12-20.

Fig. 4 of the present application shows a screen 220 that presents various options selectable by a user in exporting data from a target database system 14. The user can export TLE data either by a given query (by selecting a By Query element 222) or by database (by selecting a By Database element 224). Selection of the By Database element 224 causes environment information of the entire database (including all tables of the database) to be exported. Selection of the By Query element 222 causes only tables referenced by the given query (or queries) to be exported. Specification, p. 8, lines 17-23.

The types of environment information to be exported are also selectable by a user. One option is to select all types of environment information. Alternatively, individual types of environment information can be selected, such as by selecting an Object Definitions option 228 (to capture object definitions information including DDL statements that define tables in the target database), a Statistics option 230 (to capture statistics data), a Random AMP Sampling option 232 (to capture random samples of AMPs), and a Cost Parameters option 234 (to capture cost-related information). Specification, p. 8, lines 24-30.

## VI. GROUNDS OF REJECTION

A. Claims 1 and 3-48 stand rejected under 35 U.S.C. § 103 over Goldberg alone.

## VII. ARGUMENT

A. Claims 1 and 3-48 stand rejected under 35 U.S.C. § 103 over Goldberg alone.

1. Claims 1, 4, 5, 10, 12, 14-18, and 27-31.

The claims were rejected as being obvious over Goldberg alone. Appellant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness against the claims, as no motivation or suggestion existed to modify Goldberg to achieve the claimed invention.

Claim 1 recites a method that comprises presenting a user interface in a test system, receiving user selection through the user interface pertaining to environment information of a target database system to extract, and receiving, by the test system, the environment information extracted based on the user selection from the target database system, where the test system is separate from the target database system. The Examiner conceded that Goldberg does not disclose a test system that is separate from a target database system. 3/24/2004 Office Action at 3. However, Appellant notes that the separateness of the test system and target database system is not the only feature of claim 1 not disclosed by Goldberg. Goldberg also fails to disclose the acts of *receiving user selection* through a user interface pertaining to *environment information* of a target database system *to extract*, and receiving by the test system the *environment information extracted based on the user selection* from the target database system.

The Examiner cited to column 6, lines 54-57, and the GUI 302 of Goldberg as teaching the receiving user selection act of claim 1. The cited column 6 passage describes using a GUI 302 to aid the user in formulating a query which is consistent with a database schema. Also,

Goldberg describes a query object generator tool that uses database schema access object 316 for obtaining database schema from database 300. Goldberg, 6:51-54. To assist a user in writing SQL language queries, the database schema access object retrieves and displays schema of the underlying database to the developer. Goldberg, 6:21-28. Although Goldberg teaches that database schema information is retrieved by a database schema access object for presentation in a GUI to a user, no teaching is provided by Goldberg that this database schema information is extracted based on user selection from the target database system. The schema information presented to a user assists the user in writing SQL queries. Based on the SQL queries created by the user (which are consistent with the database schema displayed to the user), the query object generator tool 300 causes generation of source code for a query object 308. Goldberg, 6:56-63. The generator tool of Goldberg receives query strings and parameter information from a user through the GUI. Goldberg, 8:65-67. Receiving query strings and parameter information from the user does not constitute receiving user selection pertaining to environment information of a target database system *to extract*. Also, merely displaying schema information as taught by Goldberg pertaining to a database does not constitute *receiving user selection* pertaining to environment information of a target database system *to extract*.

As noted, claim 1 further recites receiving, by the test system, the environment information *extracted based on user selection* from the target database system, where the test system is separate from the target database system. The database schema information presented by the query object generator tool of Goldberg to a user does *not* constitute environment information *extracted based on user selection*. The schema information is presented to the user to enable the user to write SQL queries that are then submitted to the query object generator tool for the purpose of generating query objects.



In view of the foregoing, it is respectfully submitted that a *prima facie* case of obviousness has not been established with respect to claim 1.

Independent claim 14 is allowable over Goldberg for reasons similar to those as for claim 1. Specifically, there is no disclosure or suggestion in Goldberg of a user interface that has *user-selectable elements* to indicate environment information *to export* from a target database system separate from the first system.

Independent claim 28 is allowable for similar reasons as for claim 1, discussed above. Specifically, Goldberg does not teach or suggest receiving user selection made in a user interface indicating environment information to extract from a target database system separate from the first system, and receiving the environment information extracted based on the user selection from the target database system.

For the foregoing reasons, it is respectfully requested that the final rejection of the above claims be reversed.

**2. Claims 3, 34, 35, 38, 39, 42, 43, 45, 46, and 48.**

Dependent claims 3, 34, 35, 38, 39, 42, 43, 45, 46, and 48 are allowable for at least the same reasons as corresponding independent claims 1, 14, and 28. Moreover, Goldberg fails to teach or suggest emulating a target database system in the test system using the received environment information, as recited by claim 3. The Examiner cited to column 6, lines 48-65, of Goldberg as teaching this element. The cited passage describes the query object generator tool constructing a query object, and presenting to the user database schema information. There is nothing in this cited passage to even remotely suggest *emulating* the target database system using received environment information. Appellant does note that Goldberg refers to generating test objects used with a test framework to generate a test GUI that can display and run queries in a

query object. Goldberg, 6:66-7:5. However, the test framework described in Goldberg is used to generate a customized GUI to allow a user to view and manipulate a query object. The test framework “consists of” a test driver class that works as an application or a JAVA applet, a TestQOFrame class to generate a GUI window, and a RunQuery class to set up and run a query under control of buttons created on the test GUI display. Goldberg, 12:54-13:17. Thus, the test framework referred to in Goldberg enables the generation of a customized GUI to enable access and testing of a query object. However, creating this test framework does not constitute emulating a target database system in the test system using received environment information extracted from a target database system, as recited in claim 3.

Dependent claims 34, 35, 38, 39, 42, 43, 45, 46, and 48 are allowable for reasons similar to those of claim 3.

For the foregoing reasons, reversal of the final rejection of the above claims is respectfully requested.

### **3. Claims 6 and 22.**

Dependent claims 6 and 22 are allowable for at least the same reasons as corresponding independent claims 1 and 14. Moreover, with respect to dependent claim 6, Goldberg fails to disclose a user interface having user-selectable options corresponding to types of environment information to extract from the target database system. The Examiner cited to column 6, lines 40-51, as teaching this element. The cited passage refers to the GUI of the query object generator tool that enables receipt of user-entered SQL strings and parameter information, and display of database schema. However, there is absolute no indication or suggestion by Goldberg that the GUI contains user-selectable options corresponding to *types of environment information* to extract from the target database system.

Dependent claim 22 is similarly allowable.

In view of the foregoing, reversal of the final rejection of the above claims is respectfully requested.

**4. Claims 7, 23, 33, and 44.**

Dependent claims 7, 23, 33, and 44 are allowable for at least the same reasons as corresponding independent claims 1, 14, and 28. Moreover, with respect to dependent claim 7, the Examiner cited to column 3, lines 60-65, as teaching the presenting of options corresponding to statistics information and costs parameters. The cited column 3 passage describes generating test objects that characterize query objects for testing purposes, and using information in the test objects with a test framework to install and initialize a query object. No suggestion is made whatsoever in Goldberg of statistics information or cost parameters.

With respect to dependent claim 23, the Examiner cited to column 10, lines 16-24, as teaching that the one or more types of environment information includes information pertaining to definition of relations. The cited passage of Goldberg refers to allowing a user to define and examine one or more query objects, and changing their definitions and manipulating them in various ways. There is no reference in the cited passage to environment information being information relating to definitions of a relation. Thus, Goldberg fails to teach or suggest the subject matter of claim 23.

With respect to dependent claims 33 and 44, the Examiner cited column 6, lines 50-65, and column 8, lines 40-51, of Goldberg as teaching that the environment information includes at least one of the listed information, including number of nodes in a target database system, number of processors per node, statistics, and random samples pertaining to data demographics of data stored in the target database system. The cited column 6 passage refers to the obtaining

of database schema from a database 300 for presentation to a user in a GUI. The cited column 8 passage also refers to the retrieval of database schema of an underlying database for presentation to the user. Neither passage teaches or suggests any of the listed types of environment information of claim 33 or 44.

Reversal of the final rejection of the above claims is therefore respectfully requested.

**5. Claim 8.**

Claim 8 is allowable for at least the same reason as claim 1. Moreover, with respect to dependent claim 8, the Examiner cited column 10, lines 16-24, as teaching the presenting of a further option corresponding to data relating to definitions of relations. The cited column 10 passage describes a GUI main screen display that allows a user to define and exam one or more query objects, to change the definitions of query objects, and to manipulate the query objects. Definitions of query objects are not the same as definitions of *relations* as recited in claim 8.

In view of the foregoing, reversal of the rejection of claim 8 is respectfully requested.

**6. Claim 9.**

Claim 9 is allowable for at least the same reasons as claim 1. Moreover, with respect to dependent claim 9, the Examiner cited to column 12, lines 39-42, as teaching the presenting of a further option corresponding to samples associated with access modules. The column 12 passage refers to a code generator object that generates interface code to allow a client to access the object and code which implements the object for a specific DBMS and transactional model. This does not constitute samples associated with access modules.

For the foregoing reasons, reversal of the final rejection of claim 9 is respectfully requested.

**7. Claims 11, 24, and 26.**

Claims 11, 24, and 26 are allowable for at least the same reasons as corresponding independent claims 1 and 14. Moreover, dependent claim 11 recites presenting a user-selectable element that when activated enables editing of environment information. The Examiner cited to column 6, lines 44-47, and column 9, lines 37-40, as teaching this element. The cited column 6 passage refers to the generator tool generating components of a query object and components of a database schema access object which allows the database schema to be displayed and provision of test objects which test the query. The cited column 9 passage relates to menu options such as “New,” “Generate,” “Add,” and so forth. Neither passage even remotely suggests providing a user-selectable element that when activated enables editing of the environment information. Note that the Examiner has equated the schema information disclosed in Goldberg with environment information. There simply is no suggestion anywhere of providing a user the ability to edit the schema information in Goldberg.

Dependent claims 24 and 26 are similarly allowable over Goldberg.

For the foregoing reasons, reversal of the final rejection of the above claims is respectfully requested.

**8. Claim 13.**

Dependent claim 13 is allowable for at least the same reasons as claim 1. Moreover, claim 13 recites storing received environment information in plural files, and presenting a user-selectable element that when activated causes the files to be combined. The Examiner cited column 6, lines 48-65, of Goldberg as teaching this recited feature of claim 13. The cited passage refers to the displaying of database schema information in a GUI. However, there is absolutely no indication or suggestion anywhere in Goldberg that the GUI includes a

user-selectable element that when activated causes files storing received environment information to be combined.

For the foregoing reasons, the reversal of the final rejection of the above claims is respectfully requested.

**9. Claim 32.**

Claim 32 is allowable for at least the same reasons as claim 1. Moreover, dependent claim 32 recites presenting a screen containing graphical user interface elements selectable by a user to select, for extraction, environment information associated *with tables referenced by a query*. The Examiner cited column 8, lines 40-50, of Goldberg as teaching this element. The cited column 8 passage describes the generator tool receiving information about a database to allow a user to formulate a query and test the query. The cited passage also states that the generator tool can extract information from the database using a database schema access object 518. Nowhere within the cited passage is there any suggestion of presenting a screen containing graphical user interface elements selectable by a user to select for extraction environment information associated with tables referenced by a query.

For the foregoing reasons, the final rejection of claim 32 should be reversed.

**10. Claims 19-21.**

Claims 19-21 are allowable for at least the same reasons as independent claim 14. Moreover, claim 19 recites that one of the plural screens comprises a query selection element to select one or plural queries for which environment information is to be extracted. The Examiner cited column 6, lines 38-65, of Goldberg as disclosing this feature. The cited passage refers to a database schema access object that allows database schema to be displayed. The database

schema is presented to a user by a GUI to aid the user in formulating a query that is consistent with the database's schema. Presenting a database schema to a user such that the user can formulate a query, as taught by Goldberg, is quite different from providing a screen of the user interface that includes a query selection element to select one of plural queries *for which environment information is to be extracted*, as recited in claim 19. There is no indication or suggestion whatsoever in Goldberg that its database schema is extracted for any selected one or plural queries based on a query selection element.

For the foregoing reasons, the final rejection of the above claims should be reversed.

**11. Claim 25.**

Claim 25 is allowable for at least the same reasons as claims 14 and 24. Moreover, claim 25 recites user-selectable elements of a user interface that further includes an element to *undo editing* of environment information. As discussed above with respect to claim 24, Goldberg provides no teaching whatsoever of enabling editing of environment information. Clearly, then, Goldberg does not teach or suggest the provision of a user-selectable element to *undo editing* of environment information. The Examiner cited to column 6, lines 44-47, and column 9, lines 37-40, as teaching the undo feature. The cited column 6 passage refers to a database schema access object to allow database schema to be displayed and test objects to test a query. The cited column 9 passage refers to menu options such as “new,” “generate,” and “add,” “edit,” “delete,” “open,” “save,” “save as,” “properties,” and “exit.” There is no indication at all that any of these menu options can be used to undo an edit of environment information.

For the foregoing reasons, the final rejection of claim 25 should be reversed.

**12. Claims 36, 40, 41, and 47.**

Dependent claims 36, 40 and 41 are allowable for at least the same reasons as independent claims 1, 14, and 28, and intermediate dependent claims. Moreover, claim 36 recites visually displaying steps of the execution plan generated for a query based on emulated database environment information created by emulating the target database system in the user interface. The Examiner cited column 8, lines 34-40, as teaching this feature. The cited passage refers to using a GUI to enable a user to operate interactively with a generator tool 500. There is absolutely no suggestion whatsoever in this passage of visually displaying steps of an execution plan in a user interface, where the execution plan is generated for a query based on an emulated database environment created by emulating a target database system.

Dependent claims 40, 41, and 47 are similarly allowable over Goldberg. For the foregoing reasons, the final rejection of the above claims should be reversed.

**13. Claim 37.**

Claim 37 is allowable for at least the same reasons as independent claim 1 and the intermediate claims. Claim 37 recites that the emulated database environment comprises plural storage modules and plural access module processors to access, in parallel, respective storage modules, and where generating the execution plan for a query based on the emulated database environment created by emulating the target database system includes generating the execution plan for execution by the plural access module processors.

The Examiner cited column 6, lines 30-59, of Goldberg as disclosing this feature. The cited passage in column 6 of Goldberg does not refer whatsoever to an emulated database environment that has plural storage modules and plural access module processors.

For the foregoing reasons, the final rejection of claim 37 should be reversed.



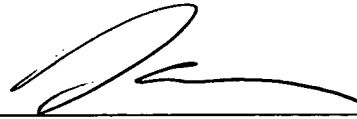
### VIII. CONCLUSION

In view of the foregoing, reversal of all final rejections and allowance of all pending claims is respectfully requested.

Respectfully submitted,

Date: \_\_\_\_\_

10-19-04



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Dan C. Hu  
Registration No. 40,025  
TROP, PRUNER & HU, P.C.  
8554 Katy Freeway, Suite 100  
Houston, TX 77024  
Telephone: (713) 468-8880  
Facsimile: (713) 468-8883

## **APPENDIX OF CLAIMS**

The claims on appeal are:

1           1.     A method comprising:  
2                 presenting a user interface in a test system;  
3                 receiving user selection through the user interface pertaining to environment  
4 information of a target database system to extract; and  
5                 receiving, by the test system, the environment information extracted based on the  
6 user selection from the target database system, wherein the test system is separate from the target  
7 database system.

1           3.     The method of claim 1, further comprising emulating the target database system  
2 in the test system using the received environment information.

1           4.     The method of claim 1, wherein presenting the user interface comprises  
2 presenting plural screens each containing at least a graphical user interface element that is user  
3 selectable.

1           5.     The method of claim 4, wherein presenting the screens comprises presenting a  
2 screen containing graphical user interface elements selectable by a user to select, for extraction,  
3 one of environment information associated with an entire database in the target database system  
4 and environment information associated with tables referenced by a query.

1           6.     The method of claim 1, wherein presenting the user interface comprises  
2 presenting user-selectable options corresponding to types of environment information to extract  
3 from the target database system.

1           7.     The method of claim 6, wherein presenting the user-selectable options comprises  
2 presenting options corresponding to statistics information and cost parameters.

1           8.     The method of claim 7, wherein presenting the user-selectable options comprises  
2     presenting a further option corresponding to data relating to definitions of relations.

1           9.     The method of claim 8, wherein presenting the user-selectable options comprises  
2     presenting a further option corresponding to samples associated with access modules.

1           10.    The method of claim 1, further comprising displaying the environment  
2     information in the user interface.

1           11.    The method of claim 10, wherein presenting the user interface comprises  
2     providing a user-selectable element that when activated enables editing of the environment  
3     information.

1           12.    The method of claim 1, further comprising storing the received environment  
2     information in plural files.

1           13.    The method of claim 12, wherein presenting a user-selectable element that when  
2     activated causes the files to be combined.

1           14.    A first system comprising:  
2                   a processor;  
3                   a display; and  
4                   software executable on the processor to present a user interface in the display,  
5                   the user interface comprising user-selectable elements to indicate environment  
6     information to export from a target database system separate from the first system.

1           15.    The first system of claim 14, wherein the software is executable on the processor  
2     to export the environment information from the target database system.

1           16.    The first system of claim 14, wherein the user interface comprises plural screens  
2     containing the user-selectable elements.

1           17.    The first system of claim 16, wherein one of the plural screens contains a first  
2   user-selectable element to indicate extraction of environment information associated with a  
3   database of the target database system.

1           18.    The first system of claim 17, wherein another one of the plural screens contains a  
2   second user-selectable element to indicate extraction of environment information associated with  
3   one or more tables associated with a query in the target database system.

1           19.    The first system of claim 18, wherein the other one of the plural screens  
2   comprises a query selection element to select one or plural queries for which environment  
3   information is to be extracted.

1           20.    The first system of claim 19, wherein the query selection element enables  
2   selection of the one or plural queries from a file.

1           21.    The first system of claim 19, wherein the query selection element enables  
2   selection of the one or more plural queries from a query capture database.

1           22.    The first system of claim 14, wherein the user-selectable elements indicate one or  
2   more types of the environment information to export.

1           23.    The first system of claim 22, wherein the one or more types of the environment  
2   information comprises one or more of the following: statistics information, cost information,  
3   information pertaining to definition of relations, and samples of data demographics of access  
4   modules in the target database system.

1           24.    The first system of claim 14, wherein the user-selectable elements comprise an  
2   element to enable editing of the environment information.

1           25.     The first system of claim 24, wherein the user-selectable elements further  
2     comprise another element to undo editing of the environment information.

1           26.     The first system of claim 24, wherein the software is executable to display the  
2     environment information in the display.

1           27.     The first system of claim 14, wherein the software is executable to export the  
2     environment information from the target database system and subsequently to import the  
3     environment information to a test system.

1           28.     An article comprising at least one storage medium containing instructions that  
2     when executed cause a first system to:  
3                 present a user interface;  
4                 receive user selection made in the user interface indicating environment  
5     information to extract from a target database system separate from the first system; and  
6                 receive the environment information extracted based on the user selection from  
7     the target database system.

1           29.     The article of claim 28, wherein the instructions when executed cause the first  
2     system to import the environment information to a test system.

1           30.     The article of claim 28, wherein the instructions when executed cause the first  
2     system to present the user interface by presenting plural screens having user-selectable elements.

1           31.     The article of claim 30, wherein the instructions when executed cause the first  
2     system to receive activation of the user-selectable elements to select types of environment  
3     information to extract.

1           32.     The method of claim 4, wherein presenting the screens comprises presenting a  
2     screen containing graphical user interface elements selectable by a user to select, for extraction,  
3     environment information associated with tables referenced by a query.

1           33.     The method of claim 1, wherein receiving the environment information comprises  
2 receiving at least one of the following information: number of nodes in the target database  
3 system, number of processors per node, statistics, and random samples pertaining to data  
4 demographics of data stored in the target database system.

1           34.     The method of claim 33, further comprising emulating the target database system  
2 based on the environment information.

1           35.     The method of claim 34, further comprising generating an execution plan for a  
2 query based on an emulated database environment created by emulating the target database  
3 system.

1           36.     The method of claim 35, further comprising visually displaying steps of the  
2 execution plan in the user interface.

1           37.     The method of claim 36, wherein the emulated database environment comprises  
2 plural storage modules and plural access module processors to access, in parallel, respective  
3 storage modules,  
4                 wherein generating the execution plan comprises generating the execution plan  
5 for execution by the plural access module processors.

1           38.     The first system of claim 14, further comprising a controller to emulate the target  
2 database system based on the environment information, the controller to generate an emulated  
3 database environment based on the emulating.

1           39.     The first system of claim 38, wherein the controller is adapted to generate an  
2 execution plan in the emulated database environment.

1           40.     The first system of claim 39, wherein the controller is adapted to visually display  
2 the execution plan in the display.

1           41.     The first system of claim 40, wherein the controller comprises plural software  
2 modules.

1           42.     The first system of claim 14, further comprising a controller to provide the  
2 environment information to a test system to enable emulation of the target database system by  
3 the test system.

1           43.     The article of claim 28, wherein the instructions when executed cause the first  
2 system to emulate the target database system based on the environment information.

1           44.     The article of claim 28, wherein receiving the environment information comprises  
2 receiving at least one of the following information: number of nodes in the target database  
3 system, number of processors per node, statistics, and random samples pertaining to data demo  
4 graphics of data stored in the target database system.

1           45.     The article of claim 28, wherein the instructions when executed cause the first  
2 system to emulate the target database system based on the environment information.

1           46.     The article of claim 45, wherein the instructions when executed cause the first  
2 system to generate an execution plan for a query based on an emulated database environment  
3 created by emulating the target database system.

1           47.     The article of claim 46, wherein the instructions when executed cause the first  
2 system to display steps of the execution plan in the user interface.

1           48.     The article of claim 28, wherein the instructions when executed cause the first  
2 system to provide the environment information to a test system to enable emulation of the target  
3 database system in the test system.